DOCUMENT RESUME

ED 101 277 CS 001 562

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TITLE	A Cognitive Evaluation of the Pinellas County Reading System, 1973-74.
INSTITUTION	Pinellas County District School Board, Clearwater, Fla.
PUB DATE	74
NOTE	20p.
EDRS PRICE	MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS	*Cost Effectiveness; Elementary Education; Elementary School Students; *Program Evaluation; *Reading Achievement; Reading Improvement; *Reading Programs; *Reading Research; Reading Skills
IDENTIFIERS	Florida; Pinellas County; *Pinellas County Reading System

ABSTRACT

The purpose of this study was to assess the reading growth of pupils in the Pinellas County (Florida) Reading System (PCRS) as compared with pupils in other types of reading programs. Data on 757 children in the target schools and 768 children in the comparison schools was analyzed. The conclusions reached in this evaluation were: that this study corroborates the findings of the earlier interim evaluation of PCRS; that despite consistently greater than expected gains, the PCRS gains were not statistically larger than were the gains in comparison schools; that in view of these findings, it appears that both the PCRS and the more traditional reading program produce better that expected reading gains; that cost estimates suggest the PCRS was less expensive than the tri-basal approach used in the comparison schools; and that no conclusion can be reached about comparative pupil, parent, and teacher attitudes as a result of this evaluation. (Data is presented in both narrative and table forms.) (RB)

A COGNITIVE EVALUATION OF THE PINELLAS COUNTY READING SYSTEM 1973-74

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October, 1974

INTRODUCTION

In December, 1973, the Research, Evaluation and Planning Department prepared an Interim Evaluation of the Pinellas County Reading System for the year 1972-73. That study did not compare schools using the Pinellas County Reading System (PCRS) with those which did not. It assessed reading achievement of the pupils only in the six PCRS target schools. The results of the study indicated that, according to Gates-McGinitie norms, pupils in the PCRS schools showed achievement consistent with or in excess of statistical expectation.

The present study differs from the interim study in three respects. First, the six PCRS target schools were compared with six non-PCRS schools. Second, the results of the countywide testing program were used (rather than a special administration of the Gates-McGinitie Test, as was used in the interim evaluation). Third, the present study eliminated pupils who transferred into or out of the PCRS and non-PCRS schools during the period from January 1, 1973, to June, 1974. Thus, all pupils whose scores are summarized in this study were in attendance in the PCRS schools for at least one and one-half years.

DESIGN

Purpose

The purpose of this study was to assess the reading growth

of pupils in the Pinellas County Reading System as compared with pupils in other types of reading programs. The Pinellas County Reading System was developed in 1971-72 by teachers and reading supervisors as a response to pupil needs and community interest in an alternative reading program. The basic principles of this system are (1) the precise definition of instructional aims in five broad areas -- readiness, word perception, comprehension, study skills, and on-going skills; (2) the specification of procedures for achieving those aims, involving diversified learning resources; and (3) continuous monitoring of each pupil's status and progress. The major objective of the reading system is the individualization of reading instruction, so that each pupil receives individual diagnosis, treatment and evaluation of progress.

Population

The six schools used for the Pinellas County Reading System sample were Gulfport, Orange Grove, Ozona (only grades 2 and 3), Sunshine, Tarpon Springs and Woodlawn. The six schools selected as comparison schools were Cross Bayou, Euclid, Lealman, Melrose, Oldsmar and Ridgecrest. As indicated previously, the data analyzed in this study was restricted to those pupils (in both the PCRS and comparison schools) who had been in the same school since January, 1973. In addition, only those pupils who were present in school on the days when

the pre-test and post-test were administered were included in the analysis. The total number of children whose data was analyzed was 757 in the target schools and 768 in the comparison schools. A table displaying the number of cases in each grade in each school category appears in Appendix A.

Test Instruments

The analyses were based on the reading sub-tests of the Metropolitan Achievement Test. The levels used in each grade, in accordance with the publisher's recommendation, were as follow:

	Pre-test	Post-test
2nd grade	Primary I	Primary II
3rd grade	Primary II	Elementary
4th grade	Elementary	Elementary
5th grade	Intermediate	Intermediate

Analysis

Although the statistical analyses were conducted on actual raw test scores, the results are reported in terms of grade equivalents. It should be kept in mind that the conversions from actual test scores to grade equivalents are based on the test publisher's norm tables, and that these tables are subject to artificial fluctuation over short periods of time. The interval between pre-testing and post-testing in

this study was seven months (October, 1973 - May, 1974). Thus, the grade equivalents reported in this study are subject to such fluctuations.

The statistical method used was the analysis of covariance, the post-test being the dependent variable and the pre-test being the covariate. Thus, the statistical analysis was conducted on the post-test scores, using the pre-test scores to adjust for any differences between the two school categories in the entry reading levels of pupils.

Because of the fluctuations introduced by the final conversion to grade equivalents, the careful reader will note slight inconsistencies among the tables. A working rule for avoiding misinterpretation is to regard differences of .1 in grade equivalent as not meaningful.

The expected gains used in this study are based on the pupils' average yearly growth rate up to the time of the pre-testing. The expectation index is thus a simple projection into the future of the rate of growth in the past. (It is computed by dividing the number of years of achieved grade equivalent by the number of years of grade placement). The average yearly growth rate is then applied to the interval of measurement (7 months) to arrive at an expectation index.

RESULTS

The analysis of covariance failed to reveal significant differences in overall reading performance between the PCRS and

comparison schools (see Tables 1 and 1 A). Both the PCRS and the comparison schools showed significant achievement gains in reading (see Tables 2 and 2 A), in most cases in excess of expectation (see Table 5). Both school types showed lower entry reading levels than the county as a whole, but gains similar to countywide gains.

An analysis was conducted on the reading growth of boys and girls separately. No significant difference was found for either boys or girls which could be attributed to PCRS (see Tables 3 and 3 A). Finally, the analysis was conducted comparing the PCRS and comparison schools in terms of low, average and high reading achievers. (These classifications were based on pre-test performance of pupils). No significant differences were found between the PCRS and comparison schools for any of the ability groups (see Tables 4 and 4 A).

LIMITATION

A trend toward individualization in all instructional programs and strategies delimits this study. The PCRS gives first priority to individualization, and develops the program from this premise. The more traditional programs, however, also are moving toward individualization through the adaptation of standard materials, the use of supplementary materials, and the increased commitment and ability of teachers to meet individual needs. In summary, it can be stated that to a greater or lesser degree the individualized approach has been injected into the "traditional" approaches. Thus, this evaluation cannot

be viewed as a comparison of the PCRS with a strictly non-systems, non-individualized reading approach. This limitation does not necessarily imply that had the PCRS been compared to a totally non-systems, non-individualized approach (which perhaps does not exist in the county) that the results would have favored the PCRS. It only suggests that the outcome may have been different.

CONCLUSIONS

The major conclusions reached in this evaluation follow:

1. This evaluation corroborates the findings of the earlier interim evaluation of PCRS. It was again found that the reading gains made by pupils in the PCRS were greater than gains expected on the basis of past reading growth.
2. Despite these consistently greater than expected gains, the PCRS gains were not statistically larger than were the gains in the comparison schools.
3. In view of the two findings above, it appears that both the PCRS and the more traditional reading program in the county are methods which produce better than expected gains in children's reading. Thus, in terms of cognitive growth, either is acceptable as an approach to the teaching of reading in the county.
4. The Elementary Education Department of the Division of Curriculum and Instruction has estimated the costs for the PCRS and the reading programs in the comparison

schools used in this study. The results indicate that the yearly PCRS cost, when amortized over four years, was less than the cost of the tri-basal approach used in the comparison schools. Thus, the results of this cognitive evaluation, when combined with these cost estimates, suggest that the PCRS was higher in cost efficiency than was the more traditional tri-basal approach. Specifically, similar cognitive results were achieved in the PCRS for approximately 15% less yearly materials and maintenance cost. In addition, start-up and maintenance costs for implementing both the system and the tri-basal approach in new 24-teacher schools were estimated. Again, the yearly difference when all costs were amortized over a four-year period favored the PCRS by approximately 15%, i.e., the PCRS projected yearly costs for materials and maintenance were approximately 15% less than were similar projected costs for the tri-basal approach. The details of the estimates are available from the Elementary Education Department.

5. No conclusion can be reached about comparative pupil, parent and teacher attitudes as a result of this evaluation. This evaluation focused on cognitive growth only. In the 1974-75 evaluation a comparison of pupil, parent and teacher attitudes toward the PCRS and the tri-basal system will be undertaken.

TABLE 1

PCRS Schools and Comparison Schools

Statistically Adjusted Mean Post-Test Grade Equivalents (Based on Metro 70 Norms)

	6 PCRS Schools	n	6 Comparison Schools	n
Grade 2	2.6	(201)	2.6	(169)
Grade 3	3.3	(158)	3.3	(196)
Grade 4	3.7	(213)	3.9	(219)
Grade 5	5.1	(185)	5.1	(184)

Interpretation: The comparison of 6 PCRS schools with 6 comparison schools revealed no significant differences attributable to program type. In other words, the one reported difference in grade equivalents between PCRS and comparison schools is not statistically significant.

TABLE 1A

PCRS Schools and Comparison Schools

Statistically Adjusted Mean Post-Test Grade Equivalents (Based on Metro-Stanford Equivalency Norms)*

	6 PCRS Schools	n	6 Comparison Schools	n
Grade 2	2.8	(201)	2.8	(169)
Grade 3	3.8	(158)	3.8	(196)
Grade 4	4.3	(213)	4.5	(219)
Grade 5	5.6	(185)	5.6	(184)

*These conversions were presented in "Equivalent Scores for the 1973 Edition of Stanford Achievement Test and the 1970 Edition of Metropolitan Achievement Tests in Terms of Grade Equivalents" published by Harcourt Brace Jovanovich Inc. The publisher indicated that the main differences between the 1970 Metropolitan Grade Equivalents and the 1973 Stanford Grade Equivalents "reflect what children are learning in 1973 as compared to 1970." Further, these converted grade equivalents reflect the best estimate of what elementary achievement would have been (based on current norms) had the Stanford test battery been used rather than the Metropolitan test battery.

TABLE 2

PCRS Schools, Comparison Schools and Total County

Unadjusted Mean Pre-Test, Post-Test, and Gain Grade Equivalents (Based on Metro 70 Norms)

	6 PCRS Schools			6 Comparison Schools			Total County		
	Pre-Test	Post-Test	Gain	Pre-Test	Post-Test	Gain	Pre-Test	Post-Test	Gain
Grade 2	1.8	2.6	.8	1.8	2.6	.8	1.9	2.6	.7
Grade 3	2.5	3.2	.7	2.6	3.4	.8	2.6	3.4	.8
Grade 4	3.2	3.7	.5	3.0	3.7	.7	3.4	4.1	.7
Grade 5	4.4	5.2	.3	4.3	5.0	.7	4.9	5.7	.8

Interpretation: The pupils in both the PCRS and comparison schools entered the 3rd and 4th grades at lower levels than the pupils in the county as a whole. However, their gains in reading were commensurate with countywide gains. (Differences of 0.1 in grade equivalent should not be regarded as meaningful). The gain of .5, compared to .7, by 4th grade pupils in the PCRS schools is the only gain which deviates downward from the general pattern by more than .1.

TABLE 2A

PCRS Schools, Comparison Schools and Total County

Unadjusted Mean Pre-Test, Post-Test, and Gain Grade Equivalents (Based on Metro-Stanford Equivalency Norms)*

	6 PCRS Schools			6 Comparison Schools			Total County		
	Pre-Test	Post-Test	Gain	Pre-Test	Post-Test	Gain	Pre-Test	Post-Test	Gain
Grade 2	Metro-Stanford equivalency norms are not provided for the pre-test batteries given in grades 2 and 3.								
Grade 3									
Grade 4	3.8	4.3	.5	3.6	4.3	.7	4.0	4.7	.7
Grade 5	4.8	5.7	.9	4.7	5.5	.7	5.4	6.3	.7

*See footnote of Table 1A.

TABLE 3

PCRS Schools and Comparison Schools

Boys and Girls

Statistically Adjusted Mean Post-Test
Grade Equivalents (Based on Metro 70 Norms)

	6 PCRS Schools		6 Comparison Schools	
	Boys	Girls	Boys	Girls
Grade 2	2.5	2.6	2.5	2.6
Grade 3	3.2	3.4	3.2	3.4
Grade 4	3.6	3.9	3.7	3.9
Grade 5	4.9	5.3	5.1	5.3

Interpretation: The comparison of boys and girls in 6 PCRS schools and 6 comparison schools revealed no significant differences attributable to program type for either sex.

TABLE 3A

PCRS Schools and Comparison Schools

Boys and Girls

Statistically Adjusted Mean Post-Test
Grade Equivalents (Based on Metro-Stanford Equivalency Norms)*

	6 PCRS Schools		6 Comparison Schools	
	Boys	Girls	Boys	Girls
Grade 2	2.7	2.8	2.7	2.8
Grade 3	3.7	4.0	3.7	4.0
Grade 4	4.2	4.5	4.3	4.5
Grade 5	5.4	5.8	5.6	5.8

*See footnote of Table 1A.

TABLE 4

PCRS Schools and Comparison Schools

Low, Average and High Reading Achievers

Statistically Adjusted Mean Post-Test
Grade Equivalents (Based on Metro 70 Norms)

	6 PCRS Schools			6 Comparison Schools		
	Low Reading Achievers	Average Reading Achievers	High Reading Achievers	Low Reading Achievers	Average Reading Achievers	High Reading Achieve
(Stanines)*	(1,2,3)	(4,5,6)	(7,8,9)	(1,2,3)	(4,5,6)	(7,8,9
Grade 2	2.2	2.6	4+**	2.1	2.6	4
Grade 3	2.4	3.6	5+	2.4	3.6	5+
Grade 4	2.9	4.5	7+	3.0	4.7	7+
Grade 5	3.9	5.7	7+	4.0	5.7	7+

*Low, average and high classification by stanines was based on entry achievement, i.e., pre-test performance.

**The number of pupils in the high stanines ranged from only 18 to 38 in individual grades. These small samples, combined with the variability of the norm tables at the upper extremes, make more precise conversion unjustifiable. Thus, "+" should be read as "higher than the beginning of the grade equivalent shown."

Interpretation: The comparison of low, average and high reading achievers in 6 PCRS schools vs. the 6 comparison schools revealed no significant differences attributable to program type for any of the ability groups.

TABLE 4A

PCRS Schools and Comparison Schools

Low, Average and High Reading Achievers

Statistically Adjusted Mean Post-Test
Grade Equivalents (Based on Metro-Stanford Equivalency Norms)*

	6 PCRS Schools			6 Comparison Schools		
	Low Reading Achievers	Average Reading Achievers	High Reading Achievers	Low Reading Achievers	Average Reading Achievers	High Readin Achieve
(Stanines)	(1,2,3)	(4,5,6)	(7,8,9)	(1,2,3)	(4,5,6)	(7,8,9
Grade 2	2.3	2.8	4+	2.2	2.8	4+
Grade 3	2.5	4.2	5+	2.5	4.2	5+
Grade 4	3.5	5.1	7+	3.6	5.3	7+
Grade 5	4.3	6.3	8+	4.4	6.3	8+

*See footnotes of Table 1A and Table 4.

TABLE 5

PCRS Schools and Comparison Schools

Gains vs. Expectations

Unadjusted Mean
Grade Equivalents (Based on Metro 70 Norms)

	6 PCRS Schools		6 Comparison Schools	
	Observed Gain	Expectation Index	Observed Gain	Expectation Index
Grade 2	.8	.5	.8	.5
Grade 3	.7	.5	.8	.5
Grade 4	.5	.5	.7	.5
Grade 5	.8	.6	.7	.6

Interpretation: Gains exceeded expectations in both PCRS and comparison schools, with the exception of the 4th grade pupils in PCRS schools. These pupils matched their expectation index but did not exceed it. As indicated on Table 1, the differences between gains in the PCRS and Comparison schools are not statistically significant.

APPENDIX A

Number of Pupils Analyzed

	Grade 2	Grade 3	Grade 4	Grade 5
PCRS schools	201	158	213	185
Comparison schools	169	196	219	184
Boys	202	180	226	196
Girls	168	174	206	173
Low-achieving readers (Pre-test stanines 1,2,3)	128	166	230	155
Average-achieving readers (Pre-test stanines 4,5,6)	184	126	160	178
High-achieving readers (Pre-test stanines 7,8,9)	58	62	42	36

Total for 12 schools, 4 grades 1,525